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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/696,683

10/29/2003

Gary L. Heiman

STAN-31

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26875 7590 11/26/2010
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EXAMINER

JOHNSON, JENNA LEIGH

ART UNIT

PAPER NUMBER

1798

MAIL DATE

DELIVERY MODE

11/26/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/696,683	Applicant(s) HEIMAN, GARY L.	
	Examiner Jenna-Leigh Johnson	Art Unit 1798	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 September 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3,5-8,13,14,16,33 and 36-40 is/are pending in the application.
- 4a) Of the above claim(s) 5-8 and 13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3,14,16,33 and 36-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on September 28, 2010 has been entered.

Response to Amendment

2. The Amendment submitted on September 28, 2010, has been entered. Claims 2, 4, 9 - 12, 15, 17 - 32, 34, and 35 have been cancelled. Claims 1 and 33 have been amended. Therefore, the pending claims are 1, 3, 5 - 8, 13, 14, 16, 33, and 36 - 40. Claims 5 - 8 and 13 are withdrawn from consideration as being drawn to a nonelected invention.

3. The 35 USC 102 and 103 rejections over Love, III et al. (2004/0229538 A1) are withdrawn since Love, III et al. fails to teach using yarns that are solely made from natural fibers.

Claim Rejections - 35 USC § 103

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

5. Claims 1, 3, 14, 16, 33, and 36 - 40 rejected under 35 U.S.C. 103(a) as being unpatentable over Collier (5,487,936) in view of Lovingood (2003/0190853).

Collier discloses a woven fabric comprising warp and weft (or filling) threads where the warp and weft threads have a different composition and at least one of the warp or weft threads is composed of a multifilament yarn (abstract). One of the yarns in a multifilament yarn and the other yarn is optionally a spun yarn of a different composition such as natural fibers cotton, flax, or wool, or synthetic fibers such as

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polyester, polyamide, polyacrylic, or polypropylene (column 3, lines 15 – 40). The continuous filament yarn can be made from synthetic fibers such as a polyester, polyamide, polyacrylic, or polypropylene (column 3, lines 21 – 30). Preferably the spun yarn is in the warp direction (column 2, lines 55 – 56).

Collier discloses that any weave pattern can be used to make the woven fabric depending on the desired visual effect (column 4, lines 10 – 15). While Collier discloses that 2 x 2 twill weaves can be used to make the woven fabric, Collier fails to teach using 2 x 1, 3 x 1, or 4 x 1 twill structures. Lovingood is drawn to woven fabrics made from warp and weft yarns of different composition which dye to produce a desired visual pattern (abstract). Lovingood discloses that the woven fabric can be produced with various weave patterns including 2 x 1 twill and 3 x 1 twill fabrics (paragraph 29). Therefore, it would have been obvious to one having ordinary skill in the art to use a 2 x 1, or 3 x 1, twill structure as disclosed by Lovingood, to produce a different visual effect in the fabric of Collier since Collier discloses that different weave patterns can be used to create different designs in the fabric.

Further, it would have been obvious to one having ordinary skill in the art to choose a 2 x 1, 3 x 1, or 4 x 1 twill weave pattern instead of a 2 x 2 twill pattern, since it has been held to be within the general skill of a worker in the art to select a known material (i.e., weave pattern) on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. One of ordinary skill in the art would be motivated to increase the float length to a 3 x 1 or 4 x 1 twill to have longer floats on the surface of the fabric to produce a smoother surface in the finished product. Thus, claims 1, 3, 14, 16, 33, and 36 - 40 are rejected.

6. Claims 1, 3, 14, 16, 33, and 36 - 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heiman in view of Fairchild's Dictionary of Textiles (Tortora, Phyllis. 7th edition. Fairchild Publications, New York. 2003. p 596) and Fabric Reference (Humphries, Mary. Prentice Hall, New Jersey. 1996., pp 105 - 110).

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Heiman discloses a woven fabric having warp and weft yarns wherein the warp yarn comprise spun cotton yarns and the filling yarns comprise continuous filament polyester yarns (column 3, lines 43 – 55).

However, Heiman fails to teach using a twill pattern with warp floats in the woven fabric.

Fairchild's discloses that twill weaves are a basic twill characterized by yarns that float over or under at least two consecutive picks (definition). The smallest repeat for a twill weave is a 2 x 1 twill structure (definition). Further, the twill weave is used to produce a strong, durable, firm fabric (definition).

The Fabric Reference provides a general teaching about twill weaves. Fabric reference teaches that the simplest twill weave is a 2 x 1 design that produces an uneven twill (page 106). Further, since warp yarns are usually stronger, a warp-faced twill will give better wear than an even twill fabric (page 106). Also, a 3 x 1 twill has an even higher proportion of warp yarns on the face than a 2 x 1 fabric so it is tougher (page 106). Further, Fabric Reference teaches that a twill weave fabric has a good balance between strength and wrinkle resistance, compared to a plain weave, plus soil resistance (page 107). And, since twill weaves have more interlacings than a plain weave, more yarns can be packed together for strength and durability, especially in a steep twill weave (i.e., a twill weave that has a higher number of floats) (page 107). Finally, Fabric Reference provides a comparison between twill and plain weaves fabric, that shows while a twill fabric is more expensive, the fabric has more wrinkle resistance, pliability, and soil resistance, than plain weave fabric.

Thus, it would have been obvious to one having ordinary skill in the art to substitute a twill weave structure for the plain weave structure disclosed by Heiman since twill weaves are known to provide a fabric with a good balance between strength and wrinkle resistance, as well as soil resistance. The fabric is durable, yet has more flexibility or drape than a plain weave.

Further, it would have been obvious to one having ordinary skill in the art to choose a 2 x 1, 3 x 1, or 4 x 1 twill weave pattern, since it has been held to be within the general skill of a worker in the art to select a known material (i.e., weave pattern) on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. While a 2 x 1 twill is the simplest twill fabric to produce, the

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higher number of floats would allow one to pack in more yarns into the fabric and create a steeper twill angle, creating a fabric that is more durable. Thus, the fabric would have better durability and wear properties allowing to stand up better against repeated washings and ironing, which Heiman discloses is a concern in sheeting fabrics (column 1, lines 40 - 55). Further, the wrinkle resistance would make the fabric need less ironing and processing, allowing the fabric to have a longer life. Thus, claims 1, 3, 14, 16, 33, and 35 – 40 are rejected.

Double Patenting

7. Claims 1, 3, 14, 16, 33, and 35 – 37 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 – 21 of U.S. Patent No. 5,495,874 in view of Fairchild's Dictionary of Textiles for the reasons of record.

8. Claims 1 – 4, 9, 10, 14 – 16, and 33 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 – 21 of U.S. Patent No. 5,495,874 in view of Fairchild's Dictionary of Textiles and Fabric Reference. US 5,495,874 claims a woven fabric having continuous polyester filament filling yarns and cotton spun warp yarns. However, US 5,495,874 fails to claim a 2 x 1 twill weave structure. Fairchild's discloses that twill weaves are a basic twill characterized by yarns that float over or under at least two consecutive picks (definition). The smallest repeat for a twill weave is a 2 x 1 twill structure (definition). Further, the twill weave is used to produce a strong, durable, firm fabric (definition). Fabric Reference discloses that a twill fabric has a good balance between strength and wrinkle resistance, and is more pliable than a plain weave fabric. Also, the yarns can be packed closer together to produce a strong a durable fabric, that has desired wear properties. Thus, it would have been obvious to one having ordinary skill in the art to substitute a twill weave for the plain weave structure disclosed by Heiman since twill weaves produce a strong and durable fabric which has better wrinkle resistance, pliability, and soil resistance than a plain weave.

Response to Arguments

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9. Applicant's arguments filed September 28, 2010 have been fully considered but they are not persuasive. With regards to the 35 USC 103 rejections over Collier and Heiman, the applicant did not specifically address these rejections, since they were vacated by the Board Decision, since the Board felt these rejection repeated the reasons for obviousness, that were upheld in the rejection over Love, III. Since the applicant amended to overcome the rejections based on Love, III, the newly amended claims required a new basis for rejection, and those rejections have been reinstated.

10. With regards to the Double Patenting rejection, the applicant supplied a Declaration stating that the twill weave fabric is not as strong as a plain weave fabric and twill weaves fabrics are more expensive to produce. However, as set forth above, the twill weave fabrics provide a good balance between strength and wrinkle resistance, while producing a tough fabric that is known to be used in applications which require durability, including outerwear and work fabrics (Fabric Reference, pages 106 - 108). Thus, in situations where durability is a concern such as sheeting (Heiman, column 1, lines 40 - 55), the trade off in cost of production and decrease in strength would be balanced out by the improve flexibility and durability of the finished fabric, which would stand up to the repeated washing and processing better. Therefore, the argument that Mr. Stewart made that he would not choose a twill fabric over a plain fabric where strong and cost are a concern does not take into account other properties which are improved in a twill fabric over a plain fabric, like wrinkle resistance, soil resistance, and pliability. Strength is not the sole concern of the sheeting industry. Wrinkle resistance, soil resistance, and fabric overall durability are also important considerations. Thus, the declaration is not persuasive.

Further, as evidence by both Fairchild's Dictionary and Fabric Reference, twill weaves are well known fabric structures with predictable strengths and weaknesses in various properties as compared to other fabric structures. It is shown that the advantages and disadvantages of one fabric pattern verse another are well understood in the art and would provide predictable improvements. Therefore, the applicant would need to provide evidence that the modifications to the weave structure in the prior art would produce clear

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unexpected results outside of the normal improvements of a twill fabric verse a plain weave fabric, or a 2 x 2 twill fabric verse a 2 x 1, 3 x 1, or 4 x 1 twill fabric. Otherwise the rejections will be maintained.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jenna-Leigh Johnson whose telephone number is (571) 272-1472. The examiner can normally be reached on Monday - Wednesday (8:30 - 4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Angela Ortiz can be reached on (571) 272-1206. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jlj
November 22, 2010

/Jenna-Leigh Johnson/
Primary Examiner, Art Unit 1798